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# National Forest Health Monitoring

**Assessing the Condition** of our Forest Resources

United States Department of Agriculture
Forest Service
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National Association of State Foresters
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In recent years, there has been considerable interest in how forest pests, air pollution, other stressors, and management methods are affecting the health of our Nation's forests. In response to these concerns, the National Forest Health Monitoring Program was established which measures, interprets, and reports the effects of these factors.

Monitoring consists of repeated forest measurements to determine current conditions, discover unusual changes, and predict future forest health consequences. Forests can be considered "healthy" when there is a balance between growth and mortality, and the forest has the resiliency to react and overcome various forest impacts. Potential forest stressors include insects, pathogens, weather, climate, air pollution, and other influences.

### **Supporting Legislation**

- Forest Ecosystems and Atmospheric Research Act of 1988.
- Food, Agriculture, Conservation, and Trade Act of 1990 (Farm Bill).

### **Program Goals**

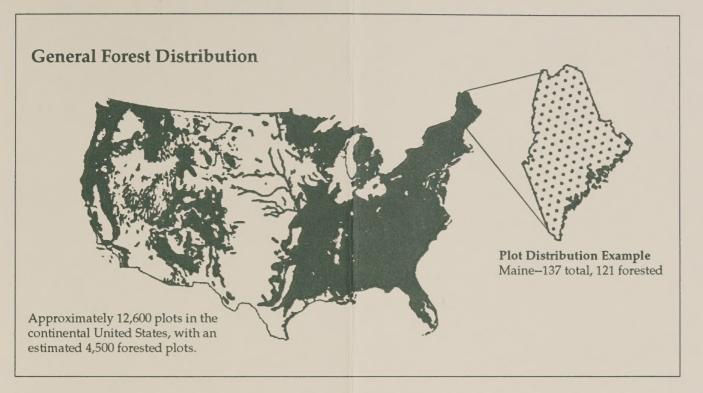
- To detect changes and trends in forest conditions.
- To report and interpret these changes at a multistate level.

### **Objectives**

- To characterize forest conditions.
- To characterize the major potential forest stressors.
- To quantify changes in forest conditions and forest stressors.
- To analyze the relationships between changes in forest conditions and potential forest stressors.
- To provide information to guide management and protection activities.

### Implementation

- 1990 Forest Health Monitoring program began in the 6 New England states.
- 1991 The program expanded to include New Jersey, Maryland, Delaware, Virginia, Georgia, and Alabama.
- 1992 California and Colorado were added to the program.
- Future Plans are to add new states every year until Forest Health Monitoring is implemented nationwide.



## Three Major Levels of Forest Health Monitoring

### **Detection Monitoring**

Determines annual differences from baseline conditions or trends. Initial design and implementation consists of:

- a plot component which provides information from a network of permanent plots distributed throughout the Nation's forested areas,
- a survey component which provides information from routine and special forest pest surveys; forest inventories; and weather, climate, and air pollution monitoring information.

Within the permanent plot network, information is recorded about the location, topography, land use, and forest type. Annually or periodically, information about understory vegetation, tree seedlings, saplings, and overstory trees is recorded. Each tree is permanently marked, and its condition is evaluated based on crown shape, fullness, and presence of insect, disease, and/or weather damage.

Annual reports are prepared describing the condition of the forest resource for state, regional, and national needs.

### **Evaluation Monitoring**

Evaluation monitoring is the process for determining cause, extent and severity of changes in forest health status that could not be obtained in detection monitoring. Surveys to evaluate the red spruce and sugar maple resource are examples of evaluation monitoring that have been implemented.

### Intensive-Site Ecosystem Monitoring

Defines interactions and predicts future conditions. It provides the most detailed, long term data for ecosystem research to determine cause, predict rates of change in forest conditions, and identify responses. Several areas will be selected nationwide representing various forest types.

